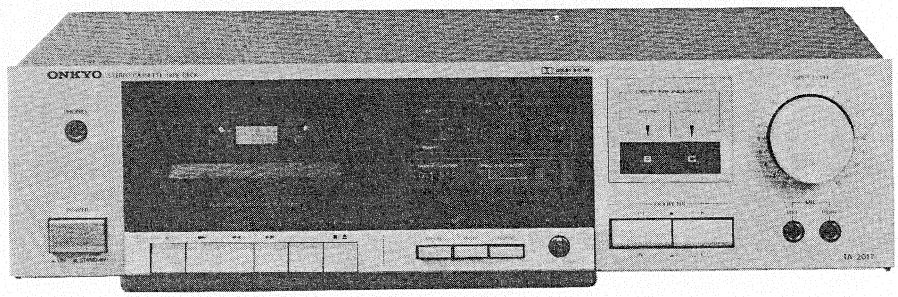
SERIAL NO. 3210

ONKYO SERVICE MANUAL

STEREO CASSETTE TAPE DECK

MODEL TA-2017



UDN, UDC, UD	120V AC, 60Hz
UG	220V AC, 50Hz
UW	120 or 220V AC, 50/60Hz
UQA, UQB	240V AC, 50Hz

Black and silver model

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PARTS NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

ONKYO®
AUDIO COMPONENTS

SPECIFICATIONS

Track Format:	4 tracks, 2 channels
Erasing System:	AC erase
Tape Speed:	4.8 cm/sec. (1–7/8 i.p.s.)
Wow & Flutter:	0.07% (WRMS)
Frequency Response:	20 – 15,000 Hz (30 – 14,000 Hz ±3dB) (normal position tape) 20 – 16,000 Hz (30 – 15,000 Hz ±3dB) (high position tape) 20 – 17,000 Hz (30 – 16,000 Hz ±3dB)(metal position tape)
Signal-to-Noise Ratio:	56dB (metal position tape, Dolby NR out) A noise reduction of 10dB above 5kHz and 5dB at 1kHz is possible with Dolby B NR. A noise reduction of 20dB at 5kHz is possible with Dolby C NR.
Input Jacks:	Mic jacks: 2 Input sensitivity: 0.6mV/600 ohms Input impedance: 2.7 kohms Line IN: 2 Input sensitivity: 60mV Input impedance: 50 kohms
Outputs:	Line OUT: 2 Std output level: 500mV (odB)

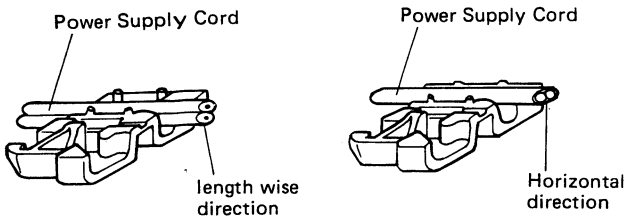
	Optimum load impedance: over 50 kohms
	Headphone Jack: 1
	Optimum load impedance: 8 – 200 ohms
Motor:	DC servo: 1
Heads:	Rec/PB head: Special Hard Permalloy
	Erase head: Ferrite
Power Supply:	AC120V/60Hz
Power Consumption:	12 watts
Dimensions:	435(W) x 112(H) x 258(D)mm (17-1/8" x 4-7/16" x 10-3/16")
Weight:	3.5kg. (7.7lbs.)

- Specifications and external appearance are subject to change without notice because of product improvements.

SERVICE PROCEDURES

1. Replacement of power supply cord

There are two power supply cord outlets on the strainrelief. Insert them in prescribed direction to ensure safety. AS-UC-3 (UD<120V> model) should be inserted lengthwise and other types of cords should be inserted horizontally.

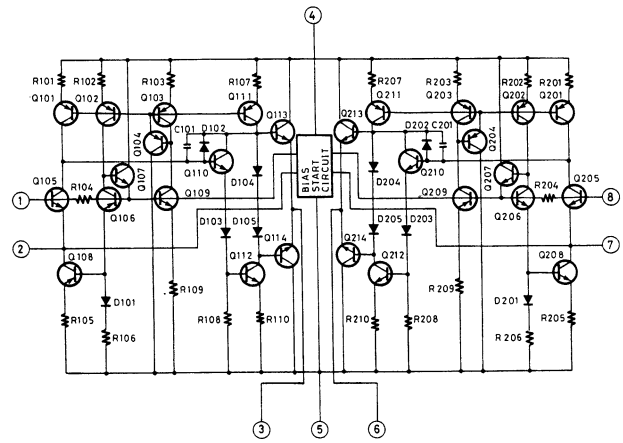


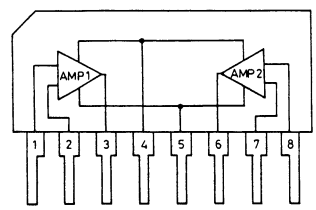
2. Instruction resistance measurement

Connect the insulating-resistance tester between the plug of power supply cord and chassis.
Specifications; 500V more than 10MΩ

IC BLOCK DIAGRAM

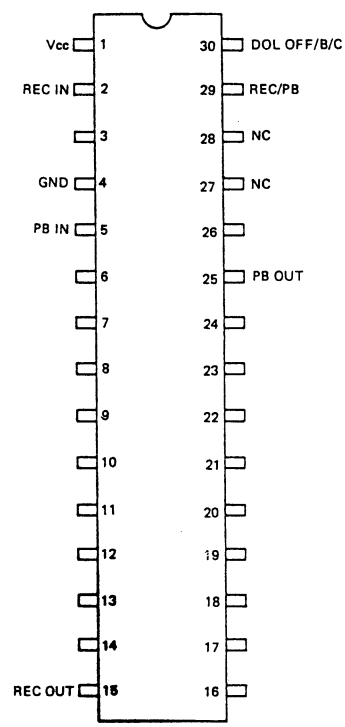
μPC-1228H



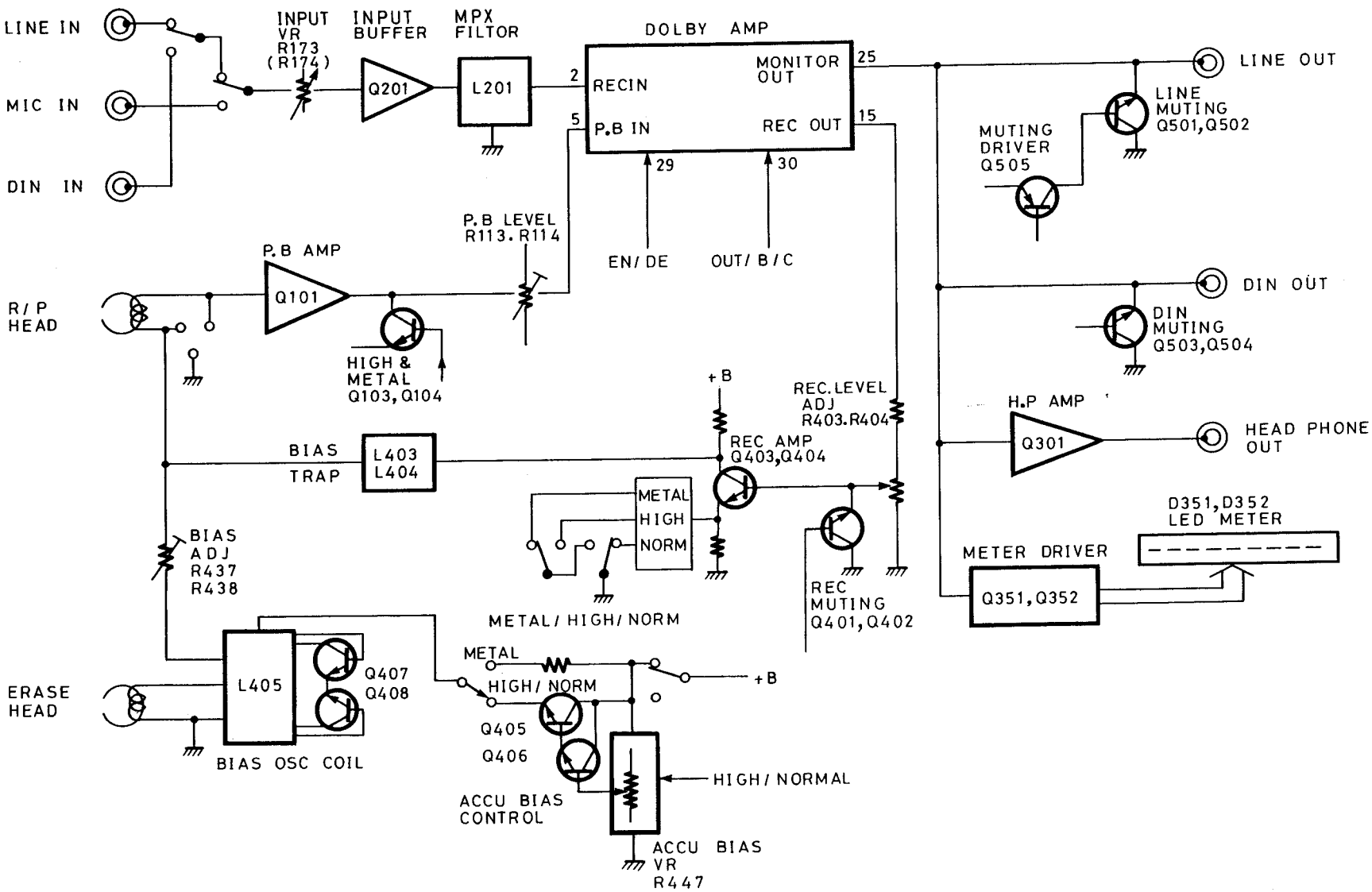


NO.	
1	INPUT 1
2	N.F.B. 1
3	OUTPUT 1
4	+Vcc
5	GND
6	OUTPUT 2
7	N.F.B. 2
8	INPUT 2

HA-12058NT (DOLBY B&C TYPE NOISE-REDUCTION SYSTEM)



BLOCK DIAGRAM

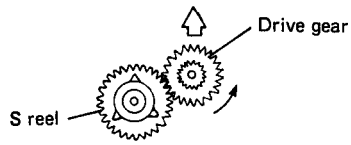


MECHANISM OPERATION

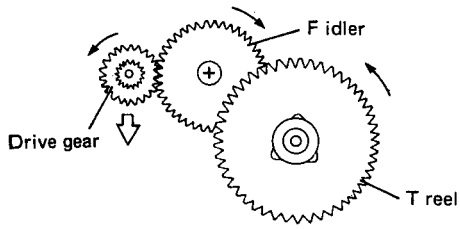
1. FF and REW Auto-Stop Mechanism

When the S or T reel is stopped during REW or FF, the drive gear, which is still trying to rotate, moves upward for REW and downward for FF.

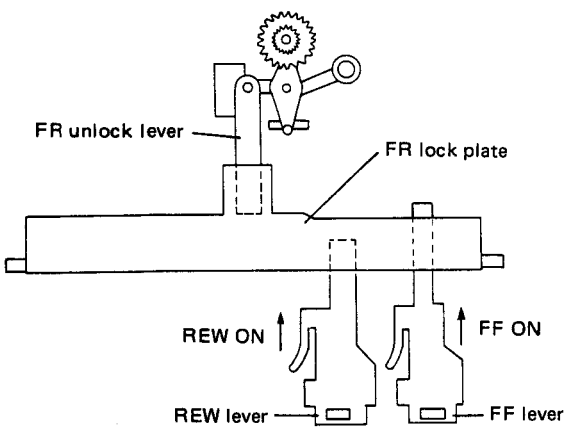
For REW

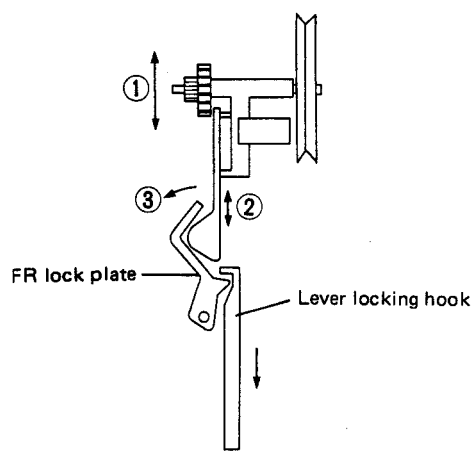


For FF



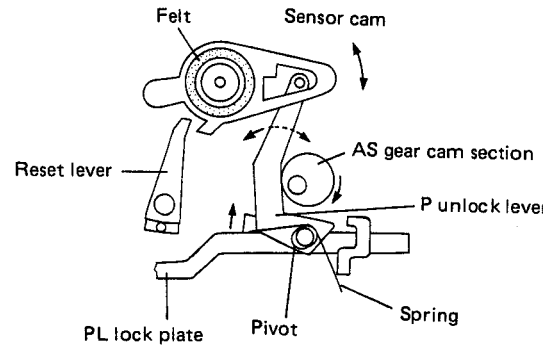
When the FR idler (drive gear) moves up and down 1 , the FR unlock lever also moves up and down 2 causing the FR lock plate to rotate (move upward) 3 ,
As the FR lock plate moves upward (flot S), the lever locking hook is released to switch to the stop mode.

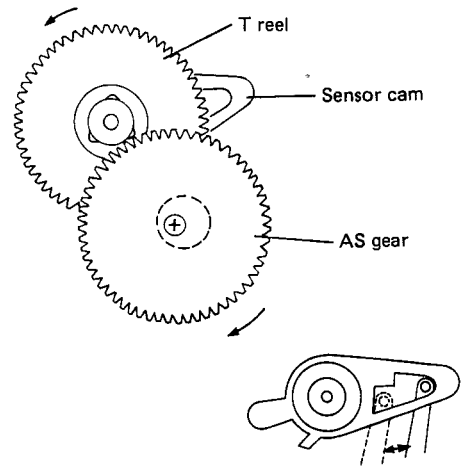




2. PLAY Auto-Stop Mechanism

2-1 Tape Transport During the play Mode



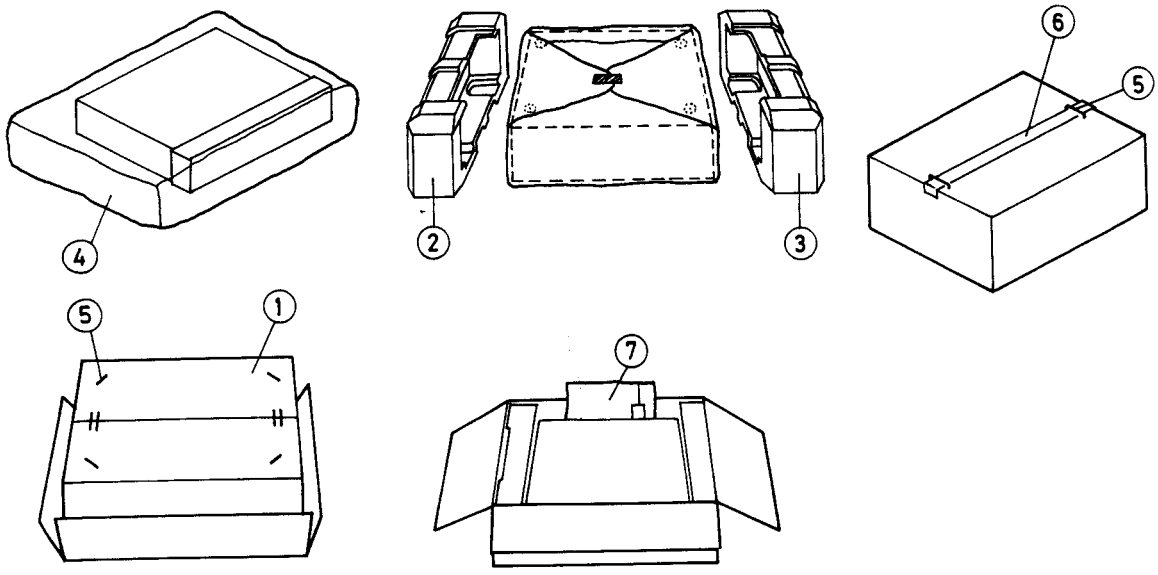


When the T reel rotates, friction with the felt causes the sensor cam to rotate to the left. However, the rotations of the AS gear (from the cam) cause the P unlock lever to back and forth. The sensor arm also moves back forth because the boss of the P unlock lever is in the sensor cam. The boss therefore moves back and forth a long the underside of the insid of the sensor cam.

2-2 Auto-Stop

If the T reel is stopped during play mode transport, the force generated by the sensor arm rotating to the left no longer exists, but the AS gear does not stop rotating. As aresult, the P unlock lever boss, which was moving back and forth on the underside of the inside of the sensor cam, now moves to the top of the cam.
However, since the top is shorer, the back and forth movement of the P unlock lever is stopped it cam be. completed. This causes the lever to pivot at the point where it has stopped, so the PL lock plate is moved to the left and PLAY lever is unlocked.

PACKING VIEW



D Model

REF. NO.	PART NO.	DESCRIPTION
1	29051129	Master caton box (S)
	29051131	Master caton box (B)
2	29090987	Pad (L)
3	29090988	Pad (R)
4	29100037A	650x500 Poly bag
5	282301	Sealing hook
6	260012	Damplon tape
7	Accessary bag ass'y	
	29340887	Instruction manual
	2010095	Connection cable
	29365006-7	Waranty card (N)
	29358002C	Service station list (N)
	29100006A	350x250 Poly bag

G/W Model

REF. NO.	PART NO.	DESCRIPTION
1	29051129	Master caton box (S)
	29051131	Master caton box (B)
2	29090987	Pad (L)
3	29090988	Pad (R)
4	29100037A	650x500 Poly bag
5	282301	Sealing hook
6	260012	Damplon tape
7	Accessary bag ass'y	
	29340888	Instruction manual
	2010095	Connection cable
	25055040	Conversion plug (CV-K-2) (W)
	29100006A	350x250 Poly bag

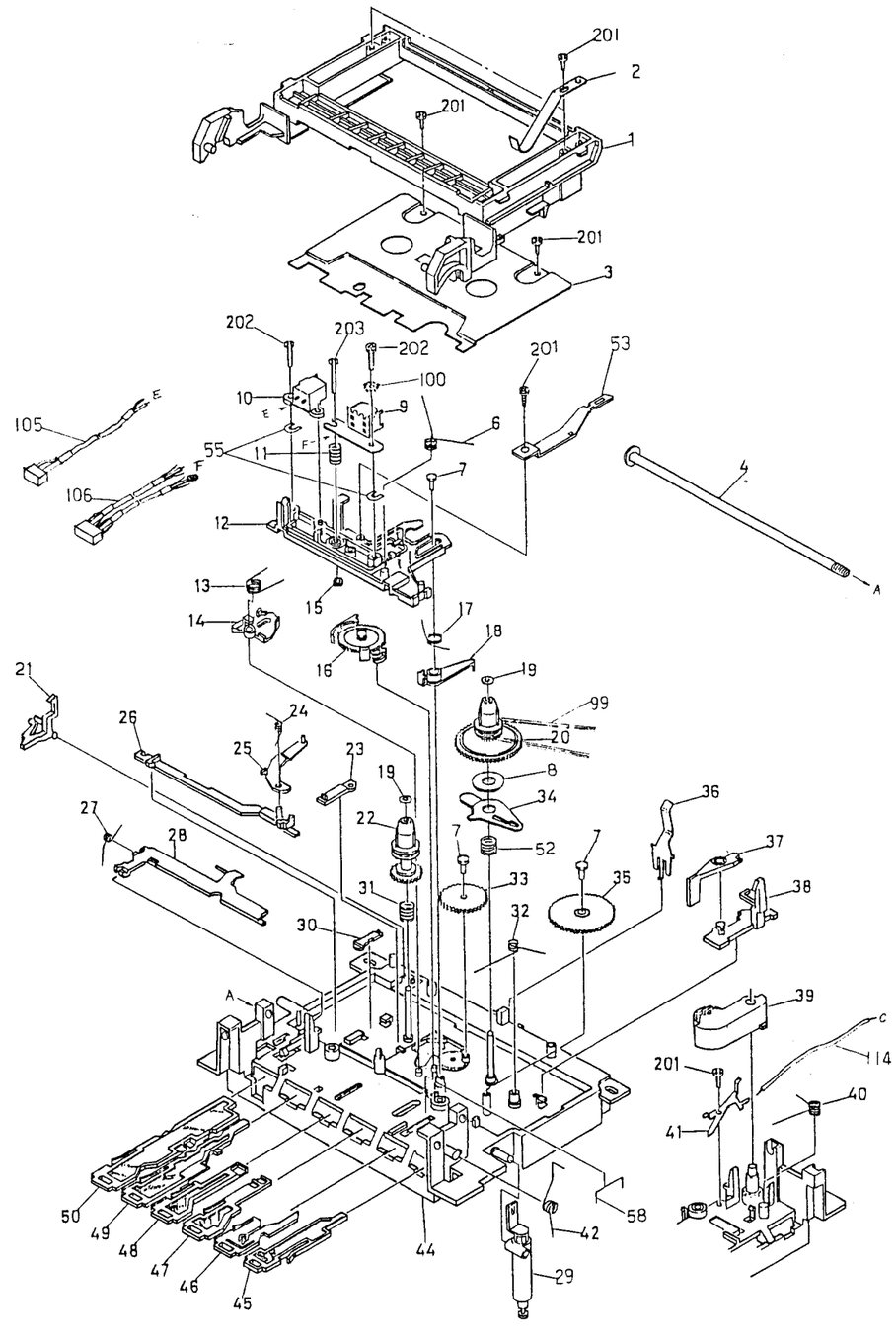
Note (N) : Only U.S.A. Model
(W) : Only 120/220V Model
(S) : Silver Model
(B) : Black Model

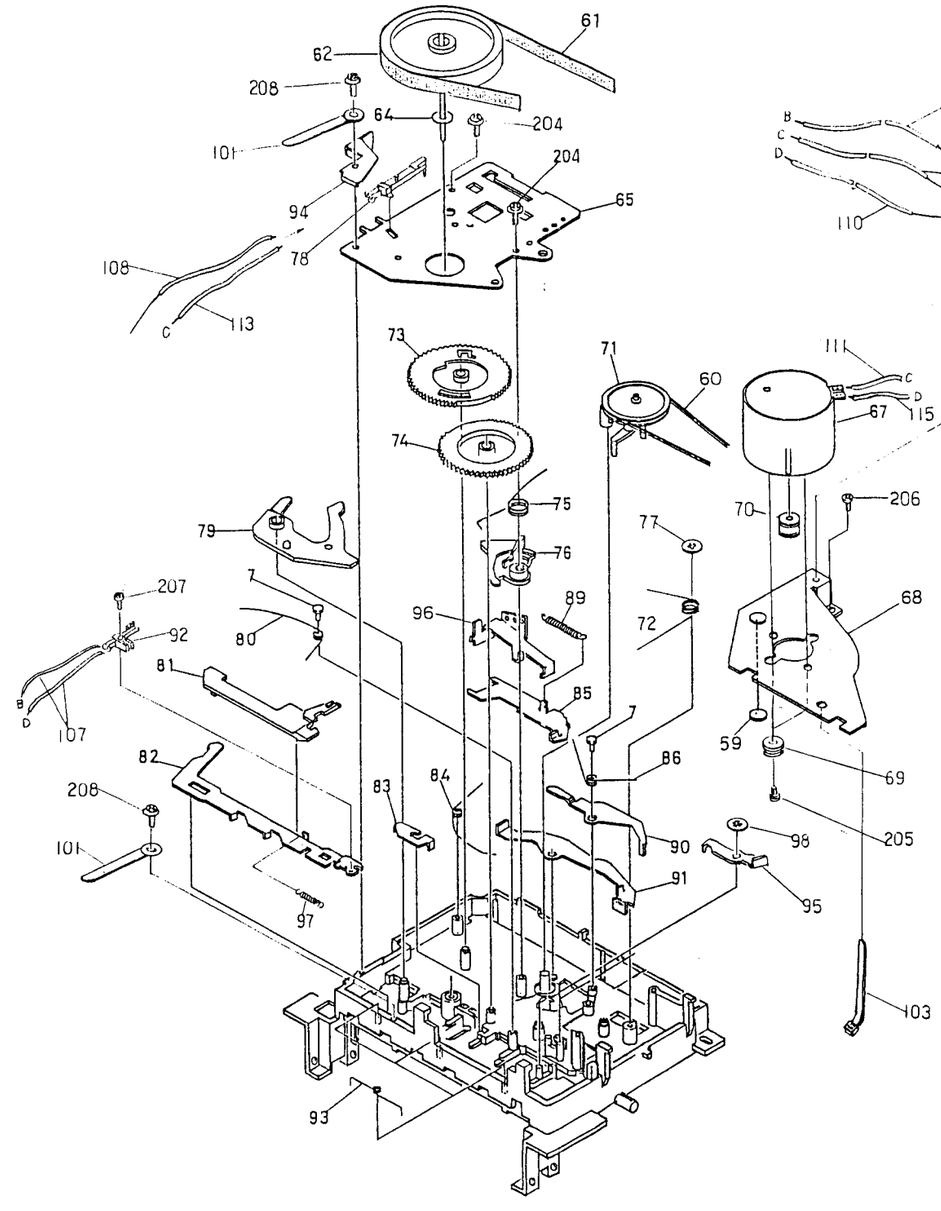
TAPE MECHANISM PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
1	24611151	C case
2	24605334	Keep plate
3	24611144	Machanism cover
4	24604073	Button shaft
6	24605566	Spring
7	24611087	Bush
8	24611152	Felt washer
9	24600054	R/P head
10	24600041	Erease head
11	24605136	C. spring
12	24611153	Head base
13	24605567	Spring
14	24603307	F.R lever
15	863120	Nut
16	24602322	P idler ass'y
17	24605568	Spring
18	24603308	Riset lever
19	24611170	Washer
20	24602323	T. reel ass'y
21	24611154	Inter rock plate
22	24602324	S reel ass'y
23	24603309	F.R unlock lever
24	24605569	Spring
25	24603310	P unlock lever
26	24611155	PL lock plate
27	24605570	Spring
28	24611156	F.R lock plate
29	24611157	Dumper ass'y
30	24611158	REC cover plate
31	24605571	S brake spring
32	24605572	Spring
33	24602325	F idler gear
34	24602326	Senser cam
35	24602327	AS gear
36	24611159	Cassette holder
37	24602328	Eject cam
38	24603311	Latch lever
39	24602329	Pinch arm ass'y
40	24605573	Spring
41	24606226	Earth lug
42	24605574	Spring
44	24611163	Chassis ass'y
45	24603312	SE lever
46	24603313	Pause lever
47	24603314	FF lever
48	24603315	REW lever
49	24603316	PL lever
50	24603317	REC lever
52	24605575	Spring
53	24611160	REV support plate
55	24604074	Spacer
58	24611161	Lock pin
59	24611162	Capstan support
60	24602330	Belt
61	24602331	Belt
62	24602332	Fly wheel ass'y
64	24611171	Washer
65	24611164	Gear holder
67	24601188	Mortor ass'y
68	24611165	Motor plate

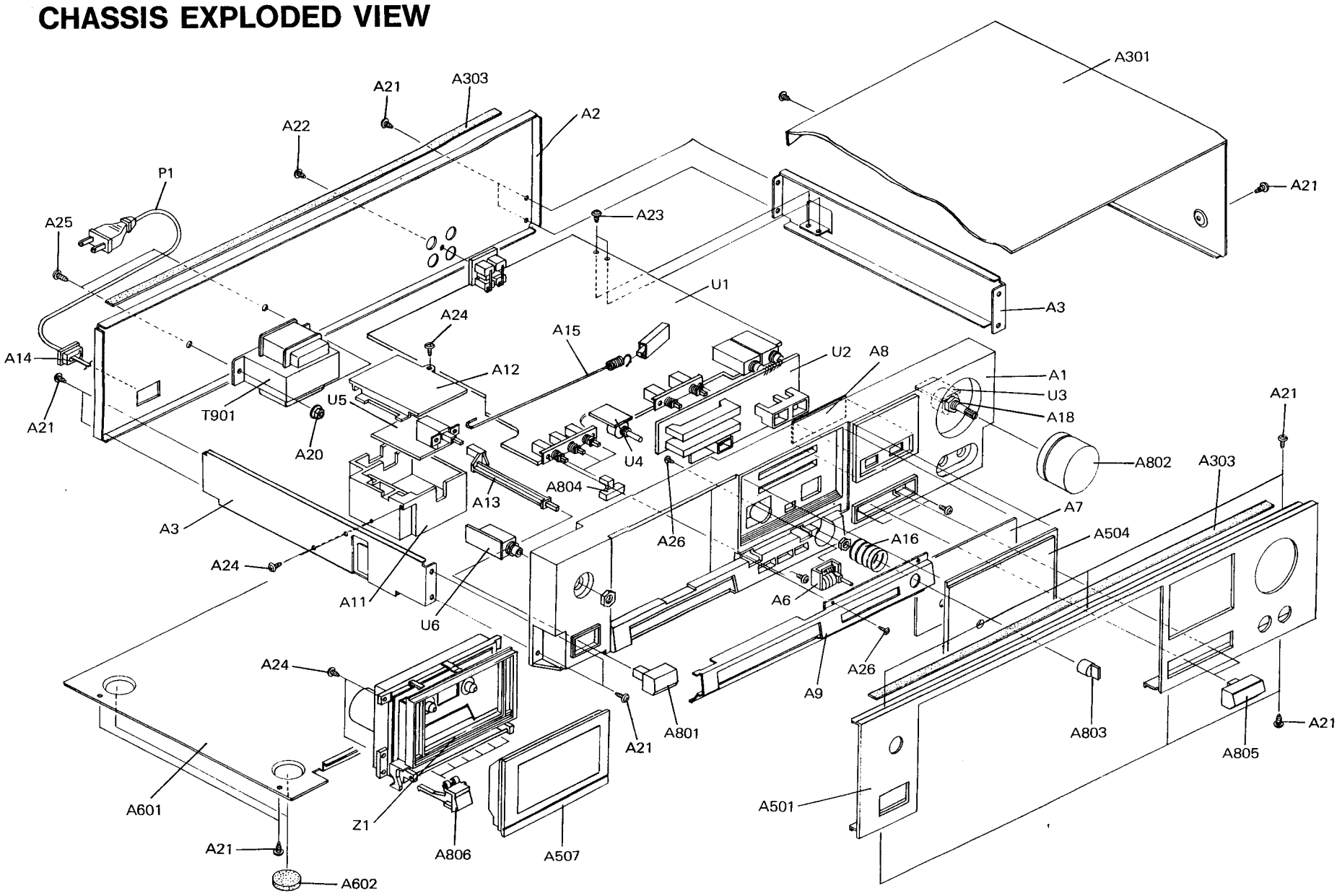
REF. NO.	PART NO.	DESCRIPTION
69	24610723	Rubber cussion
70	24602333	Pully
71	24602334	F.R. idler arm ass'y
72	24605576	Spring
73	24602335	Assist gear A
74	24602336	Assist gear B
75	24605577	Spring
76	24603318	P cam lever
77	89135	C.S. ring
78	24606227	Leaf switch
79	24603319	CR cam lever
80	24605578	Spring
81	24603320	F.R. start lever
82	24603321	FRS lever
83	24611166	Protect plate
84	24605579	Spring
85	24611167	REC joint plate
86	24605580	Spring
89	24605581	T. spring
90	24611168	REC change plate
91	24603322	PL start lever
92	24606228	Leaf switch
93	24605582	Spring
94	24611169	Dunper holder
95	24603323	CRS lever
96	24603324	RSW lever
97	24605583	T. spring
98	89130	C.S. ring
99	24602317	Belt
100	873120	Washer
101	24611118	Lug plate
102	24606229	Lug terminal
103		Nylon band
105		Seald wire ass'y
106		Seald wire ass'y
107		Lead wire
108		Lead wire
109		Lead wire
110		Lead wire
111		Lead wire
112		Lead wire
113		Lead wire
114		Lead wire
115		Lead wire
201	838120055	M 2x5 Tapping screw
202	838120085	M 2x8 Tapping screw
203	82512010	M 2x10 Screw
204	831126062	M 2.6x6 Tapping screw
205	801353	Screw
206	82112604	M 2.6x4 Screw
207	82412006	M 2x6 Screw
208	831126085	M 2.6x8 Tapping screw
209	82112605	M 2.6x5 Screw

TAPE MECHANISM-EXPLODED VIEW





CHASSIS EXPLODED VIEW



CHASSIS EXPLODED VIEW PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
A1	27110249A	Front bracket (S)
	27110250	Front bracket (B)
A2	27120728	Back bracket (D)
	27120729	Back bracket (G)
	27120731	Back bracket (W)
A3	27115130D	Side bracket
A6	2401185	Counter
A7	28133139	Back plate
A8	27262341A	Plate (DOL)
A9	27262340	Plate (S)
	27262342	Plate (B)
A11	27190351	Holder (POW)
A12	27190356	Holder
A13	27273037	Joint (L)
A14	27300750	Strainrelief
A15	27180250A	Spring
A16	27180284	Spring
A18	870039A	Washer
A20	86414010	FWN 4x10 FN, Flange nut
A21	834430068	3TTS+6B (BC), Screw
A22	834430108	3TTS+10B (BC), Screw
A23	831430088	3TTW+8B (BC), Screw
A24	833430080	3TTP+8P (BC), Screw
A25	830440109	4TTC+10C (BC), Screw
A26	833426060	2.6TP+6P (BC), Screw
A27	82143006	3P+6FN (BC), Screw
A301	28184277	Top caver (S)
	28184278	Top caver (B)
A303	28140546	390x10x0.5t, Cushion
A501	27210597	Front panel ass'y (S)
	27210599	Front panel ass'y (B)
A504	28191308	Clear plate
A505	27300726	Cassette lid
A507	28400229	Window
A601	27170205A	Bottom board
A602	27175029	Leg
A801	28321928	Knob (POW) (S)
	28321905B	Knob (POW) (B)
A802	28321887A	Knob (VOL) (S)
	28321895	Knob (VOL) (B)

REF. NO.	PART NO.	DESCRIPTION
A803	28320797	Knob (SEL) (S)
	28321735	Knob (SEL) (B)
A804	28322124	Knob (PUSH) (S)
	28322126	Knob (PUSH) (B)
A805	28322125	Knob (DOL) (S)
	28322127	Knob (DOL) (B)
A806	28321990	Knob (ME) (S)
	28321991	Knob (ME) (B)
T901 ⚠	230891	NPT-881D, Power transformer (D)
	230892	NPT-881G, Power transformer (G)
	230893	NPT-881GW, Power transformer (W)
P-1 ⚠	253099C	AS-UC-3, Power supply cord (D)
	253127	AS-CEE, Power supply cord (G/W)
S902 ⚠	25065123	NSS-1258P, Voltage selector (W)
Z-1	244078	NDM-70, Tape mechanism ass'y
U-1	11528551	NAAF-2351 Main pc board ass'y
U-2	11528552	NADIS-2352 Display pc board ass'y
U-3	11528553	NAVR-2353 Input volume pc board ass'y
U-4	11528554	NAVR-2354 Accu bias volume pc board ass'y
U-5	11528555	NASW-2355 Power switch pc board ass'y
U-6	11528556	NAHP-2356 Head phone terminal pc board ass'y

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PARTS NUMBER SPECIFIED.

(S) : Silver Model
(B) : Black Model
(D) : Only 120V Model
(G) : Only 220V Model
(W) : Only Universal Model

ADJUSTMENT PROCEDURES

PRECAUTIONS

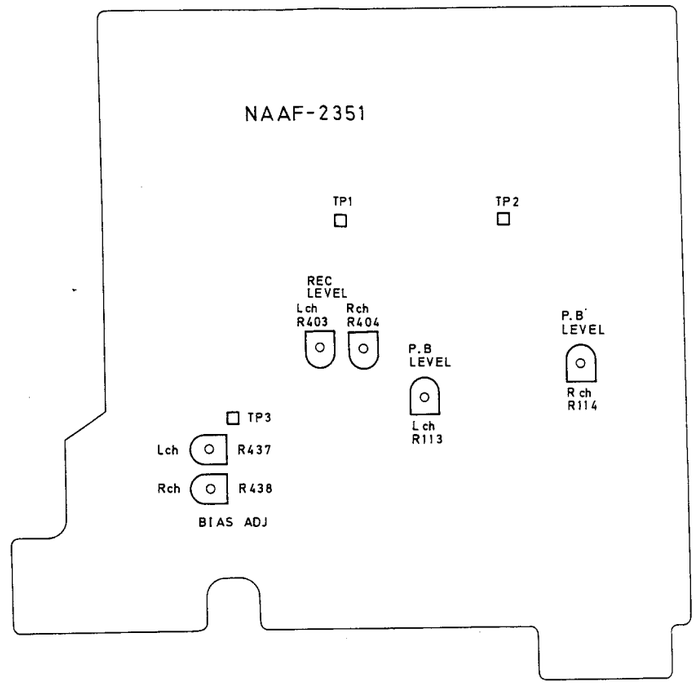
1. Before adjustment, clean the following parts with an alchol moinstend swab.
   * record/playback head
   * erase head
   * pinch roller
   * capstan
2. Do not use magnetized screwdriver for adjustments.
3. Demagnetize record/playback head with a head demagnetizer.

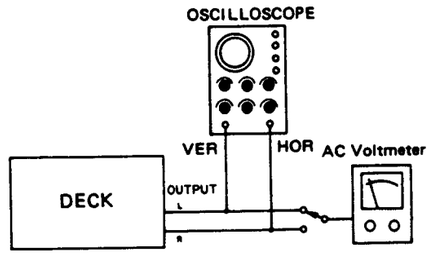
TEST EQUIPMENT/TOOLS REQUIRED:

Audio oscillator
Digital frequency counter
Oscilloscope
Attenuator
AC voltmeter
Non-magnetic screw driver
Blank tapes (completely erased)
NORMAL . . . . . NEW UD90
HIGH . . . . . NEW XL-II90
METAL . . . . . NEW MX60
Test tapes
VTT-658 : 10 KHz, −15dB
MTT-111 : 3 kHz, −10dB
MTT-150 : Dolby level calibration 400Hz, tone 200nWb/m

	Item	Connection of instrument	Line input	Test tape	Mode	Output indicator	Adjustment point	Adjust	Remarks
1	Tape speed	Frequency counter to LINE output terminal		MTT−111	PB	Frequency counter	Semi-fixed on the moter	3,010 to 3,020Hz	
2	Head azimuth	AC voltmeter and oscilloscope to LINE output terminal		VTT−658	PB	AC voltmeter	Head azimurth screw	Maximum and same phase at channels L and R	See fig. 1
3	Playback level	AC voltmeter to terminals TP−1 and TP−2		MTT−150	PB	AC voltmeter	R−113 (Ch. L) R−114 (Ch. R)	580mV	
4	Bias current	Fig. 2	1kHz, −20dB and 12kHz, −20dB	NEW XL−Π90	REC/PB	AC voltmeter	R−437 (Ch. L) R−438 (Ch. R)	Same level at REC/PB	Input VR maximum
5	Record level	Fig. 2	1 kHz		REC PAUSE	AC voltmeter	Attemator or AF OSC output	350mV	Input VR maximum
					REC/PB	AC voltmeter	R−403 (Ch. L) R−404 (Ch. R)	Same level at REC/PB	
6	Bias OSC Frequency	Frequency counter to terminal TP−3			REC	Frequency counter	L−405	85kHz±2kHz	

PLAY torque ..... 35 ~ 55gcm.
FF, REW torque ..... 70 ~ 130gcm





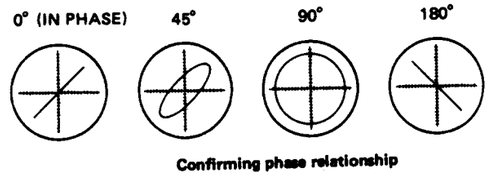


fig-1

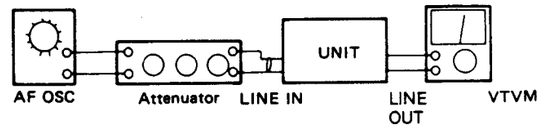
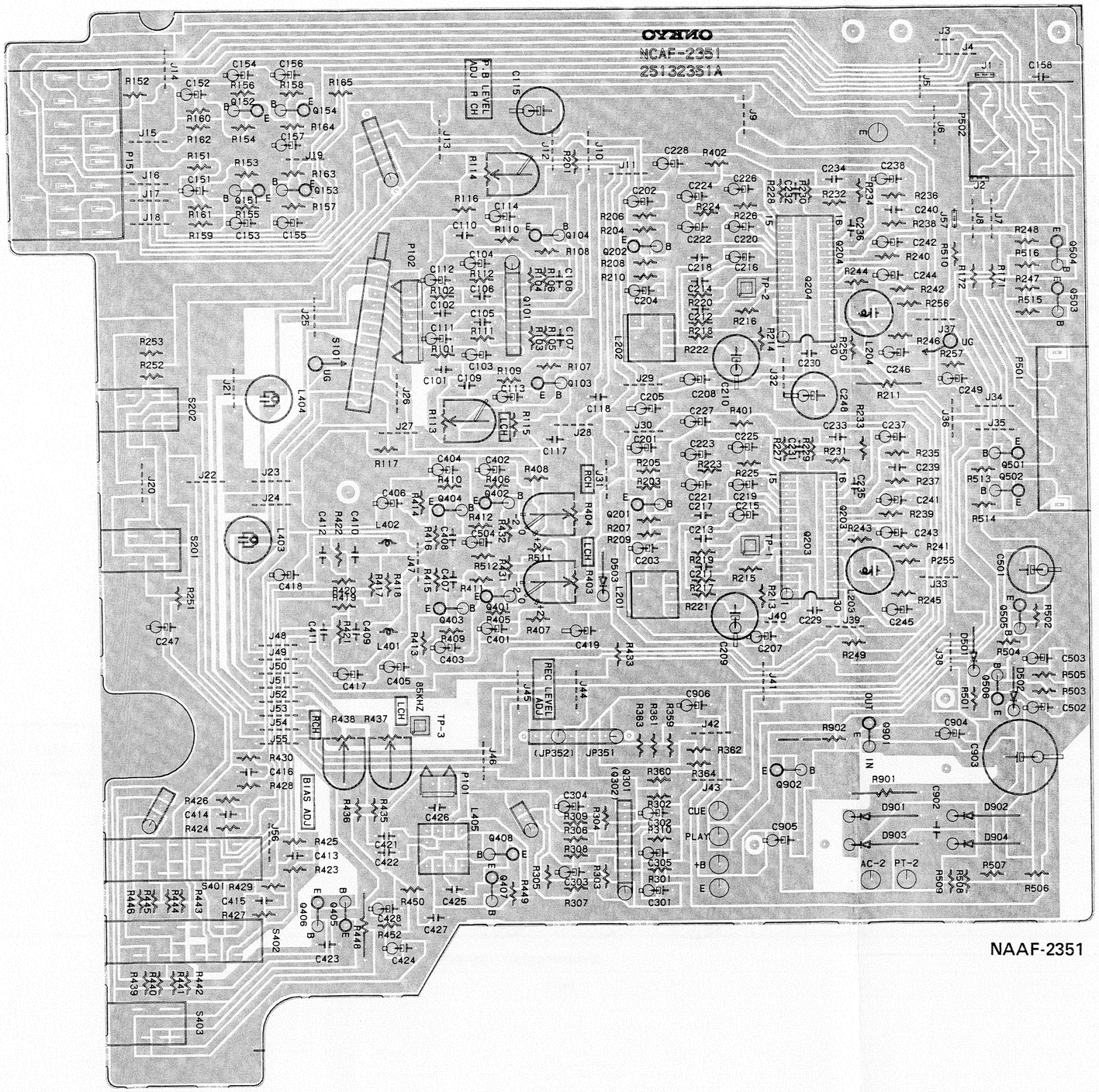


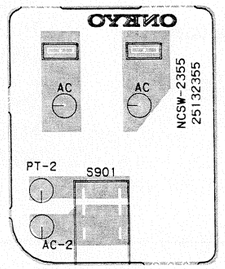
fig-2

PC BOARD VIEW FROM BOTTOM SIDE

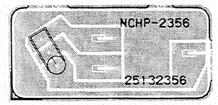


NAAF-2351

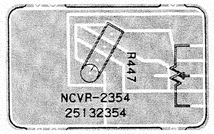
NASW-2355



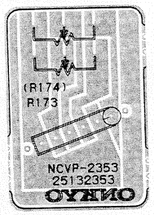
NAHP-2356



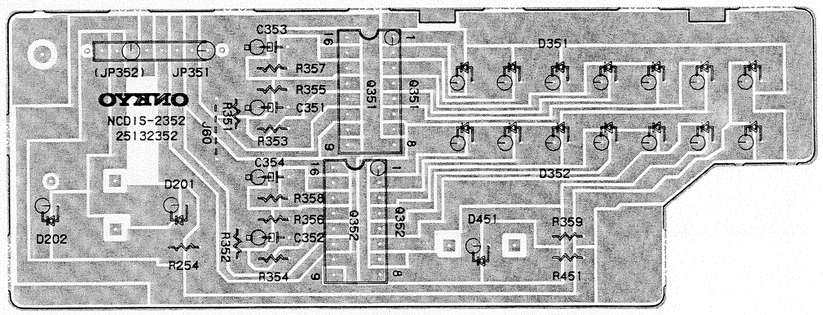
NAVR-2354



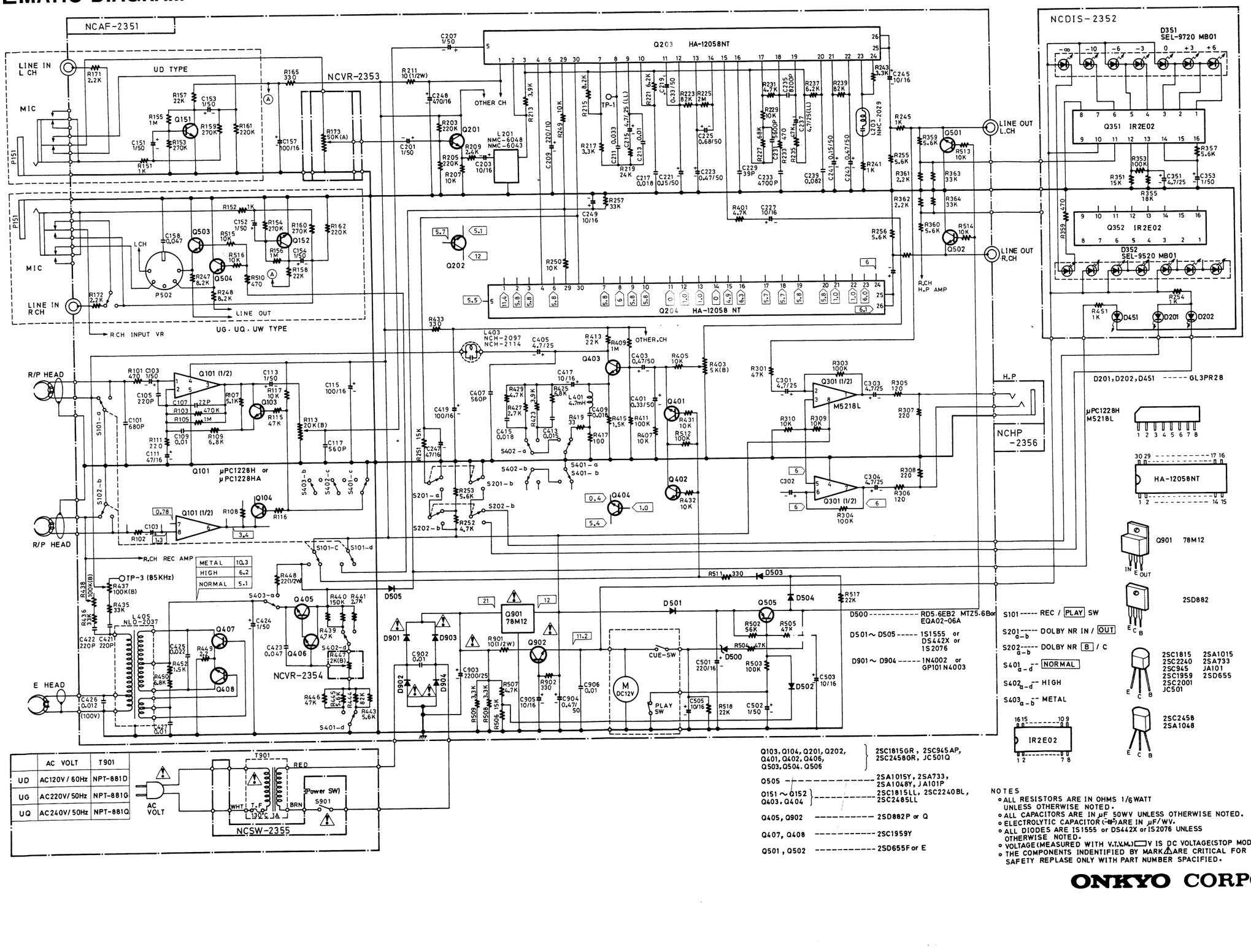
NAVR-2353



NADIS-2352



SCHEMATIC DIAGRAM



	AC VOLT	T901
UD	AC120V / 60Hz	NPT-881D
UG	AC220V/ 50Hz	NPT-881G
UQ	AC240V/ 50Hz	NPT-881Q

NOTES
- ALL RESISTORS ARE IN OHMS 1/6WATT UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN μF 50WV UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITOR (⊕⊖) ARE IN μF/WV.
- ALL DIODES ARE 1S1555 or DS442X or 1S2076 UNLESS OTHERWISE NOTED.
- VOLTAGE (MEASURED WITH V.T.V.M.) ☐ V IS DC VOLTAGE (STOP MODE).
- THE COMPONENTS INDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY REPLASE ONLY WITH PART NUMBER SPACIFIED.

ONKYO CORPORATION

PRINTED CIRCUIT BOARD-PARTS LIST

MAIN CIRCUIT PC BOARD (NAAF-2351)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q101, Q102	222874 or	μPC1228H or
	222905	μPC1228HA
Q203, Q204	222729	HA12058NT
Q301, Q302	222652	M2518L
Q901	222780122	78M12
	Transistors	
Q103, Q104	2211255,	2SC1815 (GR),
Q201, Q202	2212115	2SC2458 (GR),
Q401, Q402	2210746 or	2SC945A (P) or
Q406	2212485	JC501 (Q)
Q151, Q152	2211896,	2SC1815 (LL),
Q403, Q404	2212256 or	2SC2458 (LL) or
	2211406	2SC2240 (BL)
Q405	2201285 or	2SD882 (Q) or
	2201286	2SD882 (P)
Q407, Q408	2211544	2SC1959 (Y)
Q501, Q502	2211705 or	2SD655 (E) or
	2211706	2SD655 (F)
Q503, Q504	2211255,	2SC1815 (GR), (G/W)
	2212115,	2SC458 (GR),
	2210746 or	2SC945A (P) or
	2212485	JC501 (Q)
Q505	2211454,	2SA1015 (Y),
	2212124,	2SA1048 (Y),
	2210804 or	2SA733A (Q) or
	2212494	JA101 (P)
Q902	2201285 or	2SD882 (Q) or
	2201286	2SD882 (P)
	Diodes	
D500	2239472,	RD5.6EB2,
	2239473,	RD5.6EB3,
	2242844 or	EQA02-06A or
	2243152	MTZ5.6B
D501-D505	223105,	IS1555,
	223133 or	DS442X or
	223145	IS2076TD
D901-D904	223894 or	IN4002F or
	223880	GP101N4003
	Coils	
L201, L202	23313 or	NMC-6048 or
	233306	NMC-6043
L203, L204	233245	NMC-2029
L401, L402	24606072 or	NCH-1010 or
	231040	NCH-2080
L403, L404	233344 or	NCH-2114 or
	233314	NCH-2097
	OSC, block	
L405	231063	NLO-2037

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C103, C104	352780109	1μF, 50V, Elect.
C111, C112	352744709	47μF, 16V, Elect.
C113, C114	352780109	1μF, 50V, Elect.
C115	352741019	100μF, 16V, Elect.
C151, C152	352780109	1μF, 50V, Elect.
C153, C154	352780109	1μF, 50V, Elect.
C157	352741019	100μF, 16V, Elect.
C201, C202	352780109	1μF, 50V, Elect.
C203, C204	352741009	10μF, 16V, Elect.
C207, C208	352780109	1μF, 50V, Elect.
C209, C210	352732219	220μF, 10V, Elect.
C215, C216	392850477	4.7μF, 25V, LL
C219, C220	352783399	0.33μF, 50V, Elect.
C221, C222	352781599	0.15μF, 50V, Elect.
C223, C224	352784799	0.47μF, 50V, Elect.
C225, C226	352786899	0.68μF, 50V, Elect.
C227, C228	352741009	10μF, 16V, Elect.
C237, C238	392850477	4.5μF, 25V, LL
C241, C242	352781599	0.15μF, 50V, Elect.
C243, C244	352784799	0.47μF, 50V, Elect.
C245, C246	352741009	10μF, 16V, Elect.
C247	352744709	47μF, 16V, Elect.
C248	352744719	470μF, 16V, Elect.
C249	352741009	10μF, 16V, Elect.
C301, C302	352750479	4.7μF, 25V, Elect.
C303, C304	352750479	4.7μF, 25V, Elect.
C305	352744709	47μF, 16V, Elect.
C401, C402	352783399	0.33μF, 50V, Elect.
C403, C404	352784799	0.47μF, 50V, Elect.
C405, C406	352750479	4.7μF, 25V, Elect.
C417, C418	352741009	10μF, 16V, Elect.
C419	352741019	100μF, 16V, Elect.
C424	352780109	1μF, 50V, Elect.
C426	370131234	0.012μF, 100V, APS
C428	352744709	47μF, 16V, Elect.
C501	352742219	220μF, 16V, Elect.
C502	352740109	1μF, 16V, Elect.
C503	352741009	10μF, 16V, Elect.
C505	352780109	1μF, 50V, Elect.
C903	352752229	2200μF, 25V, Elect.
C904	352784799	0.47μF, 50V, Elect.
C905	352741009	10μF, 16V, Elect.
	Resistors	
R113, R114	5215003 or	N08HR20KBC, Semi-fixed
	5215022	
R211	441521004	10Ω, ½W, Metal oxide film
R403, R404	5215020 or	N08HR5KBC, Semi-fixed
	5215044	
R437, R438	5215024 or	N08HR100KBC, Semi-fixed
	5215047	
R448	441522204	2.2Ω, ½W, Metal oxide film
R901	441521004	10Ω, ½W, Metal oxide film

CIRCUIT NO.	PART NO.	DESCRIPTION
	Switch	
S101	25065256	NSS-42107
S201, S202	25035483	NPS-222-L445, Push switch
S401-S403	25035482	NPS-242-122-L444
	Terminals	
P151	25045157	MIJ-4337-01-3010, Mic
P501	25045142	NPJ-4PDBL55, Input/Output
	Socket	
P502	25050064	NSCT-5P18, DIM Input/Output
	Plugs	
P101	25055132	NPLG-2P-116
P102	25055136	NPLG-6P-120

DISPLAY PC BOARD (NADIS-2352)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q351, Q352	222623	IR2E02
	LEDs	
D201, D202	225177	GL3PR28
D351, D352	225159	SEL-9720-MB01
D451	225177	GL3PR28

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C351, C352	352750479	4.7μF, 25V, Elect.
C353, C354	352780109	1μF, 50V, Elect.
	Holder	
	27190380	LED
	27190381	LED

INPUT VOLUME PC BOARD (NAVR-2353)

CIRCUIT NO.	PART NO.	DESCRIPTION
R173, R174	5148106	N16RGL50KB25, Volume

ACCU BIAS VOLUME PC BOARD (NAVR-2354)

CIRCUIT NO.	PART NO.	DESCRIPTION
R447	5146053	N16RL1C2KB25

POWER SWITCH PC BOARD (NASW-2355)

CIRCUIT NO.	PART NO.	DESCRIPTION
S901 ⚠	25035481	NPS-122-L443
	25060092	NTM-1S33, Terminal

HEAD PHONE TERMINAL PC BOARD (NAHP-2356)

CIRCUIT NO.	PART NO.	DESCRIPTION
P301	25045138	HLJ-0520-01-010 Head phone terminal

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PARTS NUMBER SPECIFIED.